FIG. 1A


```
PSTPIP    1  MMAQLQFRDAFWCRDF - - TAHTGYEVLLQRLLDGRKMCKDVEELLRQRAQ
cdc15     1  - - - - - - - - - MLTKSLQGSEDAGMDALMSRTKSSLSVLESIDEFYAKRAS

                 *
PSTPIP   49  AEERYGKELVQIARKAGGQTEMNSLRTSFDSLKQQTENVGSAHIQLALAL
cdc15    41  IEREYASKLQELAASSADIPEVGSTLNNILSMRTETGSMAKAHEEVSQQI

PSTPIP   99  REELRS - LEEFRERQKEQRKKYEAIMDRVQKSKLSLYKKTMESKKAYDQK
cdc15    91  NTELRNKIREYIDQTEQQKVVAANAIEELYQKKTALEIDLSEKKDAYEYS
                            Predicted coiled coil domain                    *
PSTPIP  148  CRDADDAEQAFERVSANGHQKQVEKSQNKAKQCKESATEAERVYRQNIEQ
cdc15   141  CNKLN - - - - SYMRQTKKMTGRELDKYNLKIRQAALAVKKMDAEYRETNEL

PSTPIP  198  LERARTEWEQEHRTTCEAFQLQEFDRLTILRNALWVHCNQLSMQCVKDDE
cdc15   187  LLTVTREWIDRWTEVCDAFQHIEEYRLEFLKTNMWAYANIISTACVKDDE
                                                        +                 *
PSTPIP  248  LYEEVRLTLEGCDVEGDINGFIQSKSTGREPPAPVPYQNYY - - - - - - - - -
cdc15   237  SCEKIRLTLENTNIDEDITQMIQNEGTGTTIPPLPEFNDYFKENGLNYDI

cdc15   287  DQLISKAPSYPYSSSRPSASASLASSPTRSAFRPKTSETVSSEVVSSPPT

cdc15   337  SPLHSPVKPVSNEQVEQVTEVELSIPVPSIQEAESQKPVLTGSSMRRPSV

cdc15   387  TSPTFEVAARPLTSMDVRSSHNAETEVQAIPAATDISPEVKEGKNSENAI

cdc15   437  TKDNDDIILSSQLQPTATGSRSSRLSFSRHGHGSQTSLGSIKRKSIMERM

cdc15   487  GRPTSPFMGSSFSNMGSRSTSPTKEGFASNQHATGASVQSDELEDIDPRA

cdc15   537  NVVLNVGPNMLSVGEAPVESTSKEEDKDVPDPIANAMAELSSSMRRRQST

cdc15   587  SVDDEAPVSLSKTSSSTRLNGLGYHSRNTSIASDIDGVPKKSTLGAPPAA

cdc15   637  HTSAQMQRMSNSFASQTKQVFGEQRTENSARESLRHSRSNMSRSPSPMLS

cdc15   687  RRSSTLRPSFERSASSLSVRQSDVVSPAPSTRARGQSVSGQQRPSSSMSL

PSTPIP  289  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - DREVTPLIGS
cdc15   737  YGEYNKSQPQLSMQRSVSPNPLGPNRRSSSVLQSQKSTSSNTSNRNNGGY

PSTPIP  299  PSIQPSCGVIKRFSGLLHGSPKTTPSAPAASTETLTPTPERNELVYASIE
cdc15   787  SGSRPSSEMGHRY - GSMSGRSMRQVSQRSTSRARSPEPTNRNSVQSKNVD
                                                       SH3 domain
PSTPIP  349  VQATQGNLNSSAQDY - RALYDYTAQNSDELDISAGDILAVILEGEDGWWT
cdc15   836  PRATFTAEGEPILGYVIALYDYQAQIPEEISFQKGDTLMVLRTQEDGWWD

PSTPIP  398  VE - - - - RNGQRGFVPGSYLEKL
cdc15   886  GEIINVPNSKRGLFPSNFVQTV
```

FIG. 1B

```
                                                      10        20        30        40        50        60
pstpip.sh3    3   1 L Y D Y T A Q N S D E L D I S A G D I L A V I L E G E D G W W T V E R N G Q R G F V P G S Y L E K L
myosin.sh3    4   1 L Y Q Y I G Q D V D E L S F N V N E V I E I L L I E D S S G W W K G R L H G Q E G L F P G N Y V E K I
spectrin.sh3  5   1 L Y D Y Q E K S P R E V T M K K G D I L T L L N S T N K D W W K V E V N D R Q G F V P A A Y V K K L
fodrin.sh3    6   1 L Y D Y Q E K S P R E V T M K K G D I L T L L N S T N K D W W K V E V N D R Q G F V P A A Y V K K L
hsp.sh3       7   1 L Y D Y Q G E G S D E L S F D P D D I I T D I E M V D E G W W R G Q C R G H F G L F P A N Y V K K L
cortactin.sh3 8   1 L Y D Y Q A A G D E I S F D P D D I I T N E M I D D G W W R G V C K G R Y G L F P A N Y V E
```
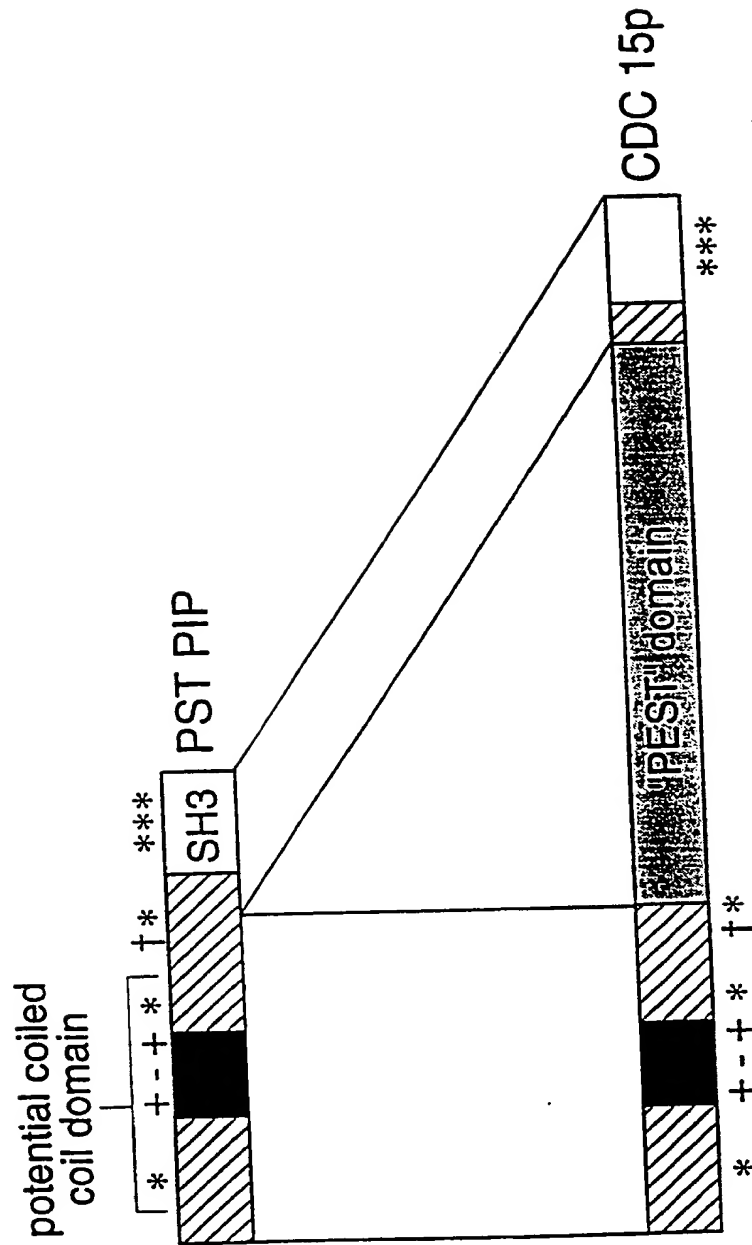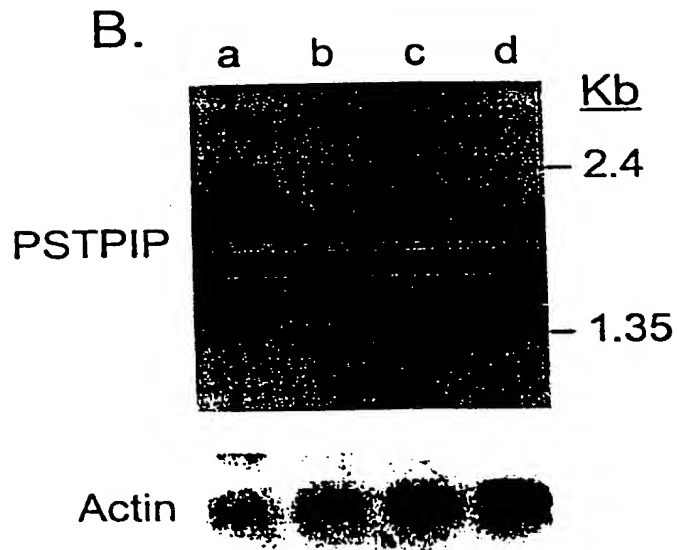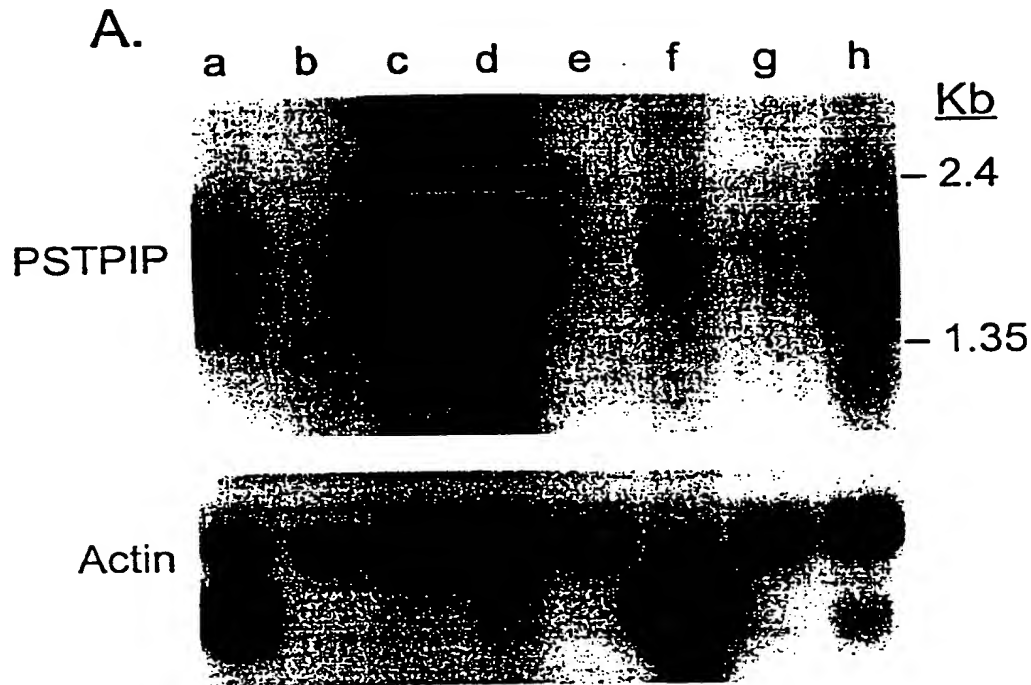
FIG. 1C

potential coiled
coil domain

SH3

PST PIP

CDC 15p

PEST domain

† = Conserved potential SH3 binding site (PXXP)

* = Conserved tyrosine residues

FIG. 2

A.

PSTPIP

Actin

B.

PSTPIP

Actin

FIG. 3

FIG. 4

A.

PTPase   PST-rich   CTH
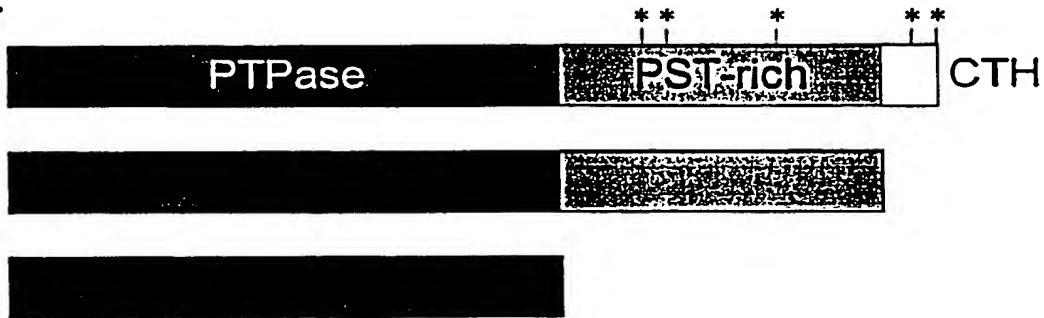
CTH : C-Terminal Homology
* : PXXP

B.   a   b   c   d   e   f   g   h   i

C.   a   b   c   d   e   f   g   h   i   j
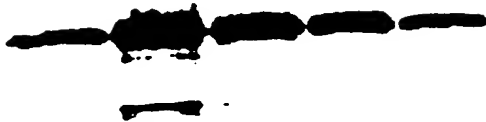
FIG. 4

D.
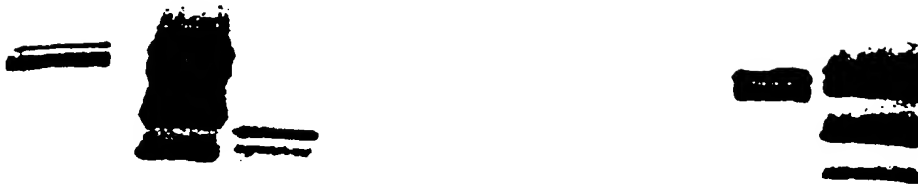
µg peptide

0 2 5 10 20 40 80

PTP HSCF
Peptide

PTP PEST
Peptide

PTP PEP
Peptide

PTP HSCF
Control Peptide

FIG.5

A.

GST   Coiled coil   SH3

B.

a   b   c   d   e   f   g

FIG. 6

A.

IP : α PSTPIP
Blot : α PSTPIP

IP : α PSTPIP
Blot : α PTyr
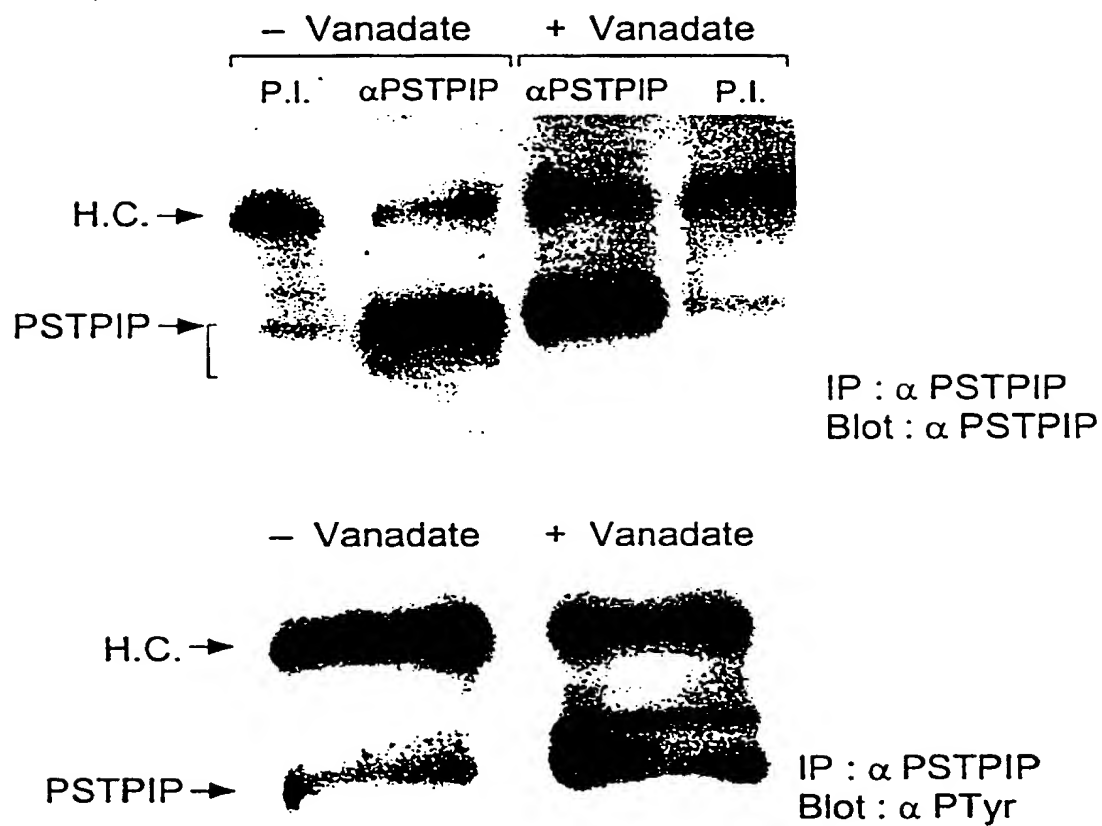
FIG. 6 (cont')

B.

PSTPIP	+	+	+	+	+	+	+	+
V-SRC	−	+	−	+	−	+	−	+
wt HSCF	−	−	−	−	−	−	+	+
C-S HSCF	−	−	+	+	−	−	−	−
D-A HSCF	−	−	−	−	+	+	−	−

C.

PSTPIP [

IP : α FLAG
Blot : α P-Tyr

D.

H.C. –
PSTPIP –

IP : α FLAG
Blot : α FLAG

E

H.C. –
PTP HSCF –

IP : α HA
Blot : α HA

FIG. 6 (cont')

F.

DA HSCF	+	−	+	−
wt HSCF	−	+	−	+
PSTPIP	−	−	+	+

PTP HSCF →
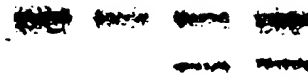
IP : α FLAG
Blot : α HA

PTP HSCF →

IP : α HA
Blot : α HA

PSTPIP →

IP : α FLAG
Blot : α FLAG

PSTPIP →

IP : α HA
Blot : α FLAG

FIG 7

FIG. 8

Fig 9.

F.L.   Δ25   Δ50   Δ75

IP: α FLAG

IP: GST-PTP HSCF

A. PIP-WT

B. PIP-Delta 25

C. PIP-Delta 50

D. PIP-Delta 75

E. PIP-W$_{232}$A

Fig 10

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Fig. 11

| WT | W204 | F221 | L224 | W232 |
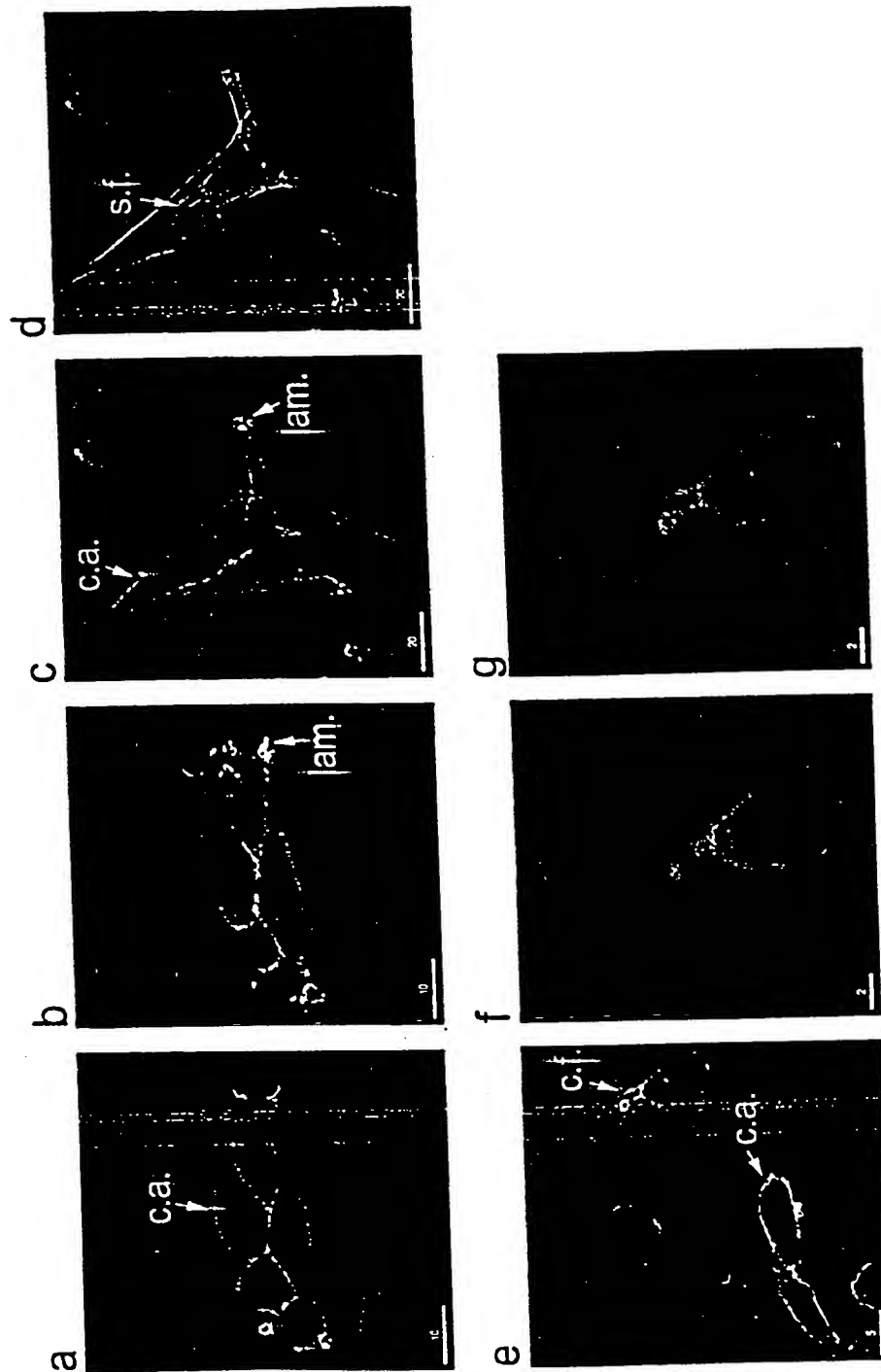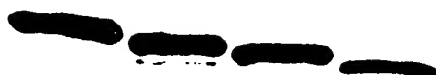
IP: α FLAG

IP: GST-PTP HSCF
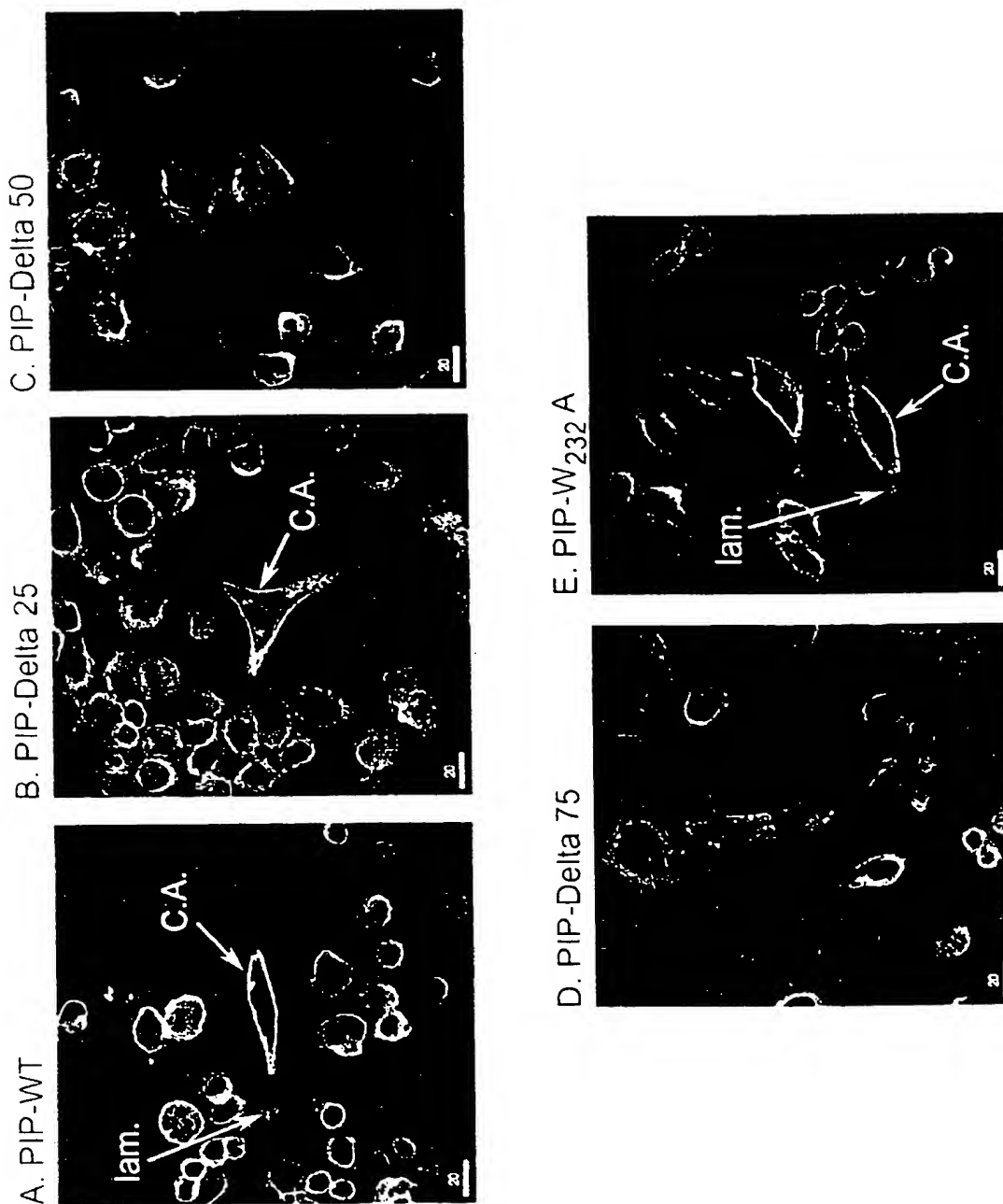
Fig. 12

v-Src	+	+	+	+	+	+
WT PTP HSCF	–	+	–	–	+	–
C-S PTP HSCF	–	–	+	–	–	+
PST PIP W$_{232}$A	–	–	–	+	+	+
PST PIP WT	+	+	+	–	–	–

IP: α FLAG blot: α PST PIP

IP: α FLAG blot: α HA

IP: α FLAG blot: α pY

IP: α HA blot: α PST PIP

IP: α HA blot: α HA

IP: α HA blot: α pY

Fig. 13

IP: GST PTP HSCF

HSCF 431 LGFNLRIGRPKGPRDPPAEWT
PEP 782 -GFGNRFSKPKGPRNPPSAW-
PEST 760 IGFGNRCGKPKGPRDPPSEWT

Fig. 14A/1

A.

IP: GST PST PIP, 1μg

| Wt | P$_{440}$ | G$_{442}$ | P$_{443}$ | R$_{444}$ | P$_{447}$ | W$_{450}$ |

IP: GST PST PIP, 10μg

| Wt | P$_{440}$ | G$_{442}$ | P$_{443}$ | R$_{444}$ | P$_{447}$ | W$_{450}$ |

IP: α HA

| Wt | P$_{440}$ | G$_{442}$ | P$_{443}$ | R$_{444}$ | P$_{447}$ | W$_{450}$ |

Fig. 14A/2

B.

	PST PIP	PTP HSCF$_{WT}$	PTP HSCF$_{D24}$	PTP HSCF$_{440}$	PTP HSCF$_{442}$	PTP HSCF$_{443}$	PTP HSCF$_{444}$	PTP HSCF$_{447}$	PTP HSCF$_{450}$	PTP HSCF$_{444+450}$
	−	+	+	−	−	−	−	−	−	−
	+	+	−	+	−	−	−	−	−	−
	+	−	+	−	+	−	−	−	−	−
	+	−	−	+	−	+	−	−	−	−
	+	−	−	−	+	−	+	−	−	−
	+	−	−	−	−	+	−	+	−	−
	+	−	−	−	−	−	+	−	+	−
	+	−	−	−	−	−	−	+	−	+
	+	−	−	−	−	−	−	−	+	−
	+	−	−	−	−	−	−	−	−	+

IP: α FLAG
blot: α PST PIP

IP: α Ha
blot: PST PIP

IP: α HA
blot: α HA

Fig. 14

Fig. 15

WT
PST PIP

$W_{232}A$
PST PIP

IP: α FLAG
blot: α PST PIP

IP: α FLAG
blot: α pY

v - Src